# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/727,046 | 11/30/2000 | Norihito Fujita | P/2238-25 | 2977 |

7590          02/26/2004

STEVEN I WEISBURD ESQ
DICHSTEIN SHAPIRO MORIN & OSHINSKY LLP
1177 AVENUE OF THE AMERICAS 41ST FLOOR
NEW YORK, NY 10036-2714

| EXAMINER |
|---|
| NGUYEN, ALAN V |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2662 | |

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | **Application No.** | **Applicant(s)** |
|---|---|---|
| | 09/727,046 | FUJITA, NORIHITO |
| **Office Action Summary** | **Examiner** | **Art Unit** | |
| | Alan Nguyen | 2662 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *  c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *3, 5, 6*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 1-04)                    Office Action Summary                    Part of Paper No./Mail Date 7

## DETAILED ACTION

### *Specification*

1.      The disclosure is objected to because of the following informalities:

On page 12, line 15, "LSR 102 via the LSR 103" should read -- LSR 103 via the

LSR 102 --.

On page 12, line 21, "of he present" should read --of the present --.

There are other numerous typographical and grammar errors of the same nature

throughout the specification.

Appropriate correction is required.


2.      The title of the invention is not descriptive.  A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: "Merge Method and Node for Consolidating a

Plurality of Communication Connections in a Connection-Oriented Network".


### *Claim Rejections - 35 USC § 112*

3.      The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.      Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claim 3 recites the limitation "said tunneling" in line 1. There is insufficient

antecedent basis for this limitation in the claim.


## Claim Rejections - 35 USC § 102

5.     The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the
United States before the invention thereof by the applicant for patent, or on an international application
by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
title before the invention thereof by the applicant for patent.


The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6.     Claims 1-3 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated

by Hughes et al (US 6,512,744) hereinafter Hughes.

Regarding **claims 1 and 12** Hughes discloses a method and apparatus of a

communication connection merge method *(figure 2 shows the connection merging*

*of elements 24 and 40 to node 32)* performing merge process for consolidating a

plurality of communication connection *(elements 24, 40)* of a connection-oriented

network at a node *(element 32)* on the way of transfer route into a common

communication connection *(Column 5, lines 29-32 discloses that the embodiment is an ATM system that merges virtual channels. ATM is a connection-oriented network)*, comprising:

· a step of making judgment of possibility to have a common transfer route from a node *("router", element 32)* to merge to an egress node *("egress router", element 30)* upon merging new communication connection *(element 40)* on setting for existing communication connection *(element 24; column 8, lines 4-14 discloses that after router 30 receives a packet, it looks into the packet and determines how further to deal with the packet. Lines 10-12 discloses that router 30 has a means of determining that packets having a certain address prefix should be passed to a downstream router)*;

a step of modifying collateral parameter *("merge-adjustment step", column 11, line 36)* of said existing communication connection which is judged to merge the new communication connection for enabling accommodation of the new communication connection in said existing communication connection *(column 3, lines 58-61 discloses that the routers 30 and 32 adjusts their parameters depending on the scenario. For example, routers 30 and 32 may allocate two different virtual-channel identifiers to a common-destination path instead of assigning a common identifier. Also column 11, lines 1-5, further discloses that the routers are able to decide on and reduce data rates they forward until the data-cell rates decrease to the capacities. Making that decision requires balancing the rate allocated to the*

*virtual channel with those allocated to other virtual channels that use the same*

*interface)*; and

a step of performing merge after modification of parameter of the existing

communication connection *(column 10, lines 56-60 discloses the merging router*

*divides among the upstream routers the explicit rate. After the allocation,*

*merging of the data occurs)*.


Regarding **claims 2 and 13** with the features of parent claims 1 and 12

addressed above, Hughes discloses where the connection-oriented network is a multi-

protocol label switching network *(column 7, lines 11-19 discloses a network that*

*utilizes label switching routers that further uses labels to forward packets. Since*

*the network is an MPLS network that uses label switching routers to forward the*

*labeled packets, it is inherent that the connection coupling the nodes are label*

*switched paths)* the communication connection is a label switched path, and the node

is a label switching router *(column 8, lines 15-20 discloses that the link-layer and*

*network layer protocols are Ethernet and IP. This is indicative of an MPLS*

*network with label switching routers since it forwards layer 3 packets using IP*

*and its associated routing protocols operate link layer synonymous with layer 2)*.

Regarding **claims 3 and 14** with the features of parent claims 1 and 12

addressed above, Hughes discloses where the connection-oriented network is an

asynchronous transfer mode network *(column 4, lines 52-54 discloses the invention*

*is part of an ATM-implemented network)*, the communication connection is a virtual

channel and the tunneling communication connection is a virtual path *(column 5, lines*

*27-37 discloses the switch routs cells through virtual channels and virtual paths)*,

and the node is an asynchronous transfer mode switch *(column 12, lines 15-19*

*discloses the switches of the embodiment are ATM switches)*.


### Claim Rejections - 35 USC § 103

7.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.      Claims 4-11 and 15-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hughes in view of Gibson et al (US 6,680,943) hereinafter Gibson.

Regarding **claims 4, 8, 15, and 19** Hughes discloses a method and apparatus of

a communication connection merge method *(figure 2 shows the connection merging*

*of elements 24 and 40 to node 32)* performing merge process for consolidating a

plurality of communication connection *(elements 24, 40)* of a connection-oriented

network at a node *(element 32)* on the way of transfer route into a common

communication connection *(Column 5, lines 29-32 discloses that the embodiment is*

*an ATM system that merges virtual channels. ATM is a connection-oriented*

*network)*, comprising:

a step of making judgment of possibility to have a route from a node *("router",*

*element 32)* to merge to an egress node *("egress router", element 30)* upon merging

new communication connection *(element 40)* on setting for existing communication

connection *(element 24; column 8, lines 4-14 discloses that after router 30 receives*

*a packet, it looks into the packet and determines how further to deal with the*

*packet. Lines 10-12 discloses that router 30 has a means of determining that*

*packets having a certain address prefix should be passed to a downstream*

*router)*;

a step of modifying collateral parameter of said existing communication

connection which is judged to merge the new communication connection for enabling

accommodation of the new communication connection in said existing communication

connection *(column 3, lines 58-61 discloses that the routers 30 and 32 adjusts*

*their parameters depending on the scenario. For example, routers 30 and 32 may*

*allocate two different virtual-channel identifiers to a common-destination path*

*instead of assigning a common identifier. Also column 11, lines 1-5, further*

*discloses that the routers are able to decide on and reduce data rates they*

*forward until the data-cell rates decrease to the capacities. Making that decision*

*requires balancing the rate-allocated-to-the-virtual-channel with those allocated to*

*other virtual channels that use the same interface)*; and

a step of performing merge after modification of parameter of the existing

communication connection *(column 10, lines 56-60 discloses the merging router*

*divides among the upstream routers the explicit rate. After the allocation,*

*merging of the data occurs)*, and the two communication connections on the tunneling

communication connection are later branched at a terminal point node after modification

after merging *(column 4, lines 53-55 discloses that the packet switch of the embodiment is implemented in label-switching networks. It is inherent that the packets that are forwarded into the merger node must be transmitted to its proper destination, meaning that the downstream node must branch out to other nodes in the network to reach the destination point)*.

Hughes fails to disclose that the communication connection is a tunneling communication connection

Gibson, however, discloses the use of tunneling in a MPLS communications network *(column 11, lines 1-14, discloses when the communications network is first established, it sets up a network of tunnels in the physical layer. These tunnels are subsequently registered with the management layer. That is, information about the source, destination and capacity of each tunnel is made known to the management layer. Each management node makes a record of the tunnels that originate or terminate at the abstract node associated with that management node)*.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hughes' apparatus that makes judgment of possibility to have a route from a node and also modifies a parameter of an existing communication connection to accommodate for the new connection to utilize tunneling paths in its operation, as taught by Gibson. The motivation is that tunneling simplifies forwarding operation by pre-provisioning label switch paths of high capacity, the administrative server constrains the number of possible routes between two endpoints for a proposed

communication session of a given capacity. This reduces the level of detail needed to

make routing decisions as explained by Gibson on column 10, lines 61-65.


Regarding **claims 6, 10, 17, and 21** with the features of parent claims 4, 8, 15,

and 19 addressed above, Hughes further discloses where the connection-oriented

network is a multi-protocol label switching network *(column 7, lines 11-19 of Hughes*

*discloses a network that utilizes label switching routers that further uses labels to*

*forward packets. Since the network is an MPLS network that uses label switching*

*routers to forward the labeled packets, it is inherent that the connection coupling*

*the nodes are label switched paths)* the communication connection is a label

switched path, and the node is a label switching router *(column 8, lines 15-20*

*discloses that the link-layer and network layer protocols are Ethernet and IP. This*

*is indicative of an MPLS network with label switching routers since it forwards*

*layer 3 packets using IP and its associated routing protocols operate link layer*

*synonymous with layer 2)*.

Regarding **claims 7, 11, 18, and 22** with the features of parent claims 4, 8, 15,

and 19 addressed above, Hughes further discloses where the connection-oriented

network is an asynchronous transfer mode network *(column 4, lines 52-54 of Hughes*

*discloses the invention is part of an ATM-implemented network)*, said

communication connection is a virtual channel and said tunneling communication

connection is a virtual path *(column 5, lines 27-37 discloses the switch routs cells*

*through virtual channels and virtual paths)*, and said node is an asynchronous

transfer mode switch *(column 12, lines 15-19 discloses the switches of the embodiment are ATM switches)*.

Regarding **claims 5, 9, 16, 20** with the features of parent claims 4, 8, 15, and 19 addressed above, Hughes discloses branching at the terminal node *(column 4, lines 53-55 discloses that the packet switch of the embodiment is implemented in label-switching networks. It is inherent that the packets that are forwarded into the merger node must be transmitted to its proper destination, meaning that the downstream node must branch out to other nodes in the network to reach the destination point)*

Hughes further fails to disclose where the tunneling communication connection recursively repeats merge upper level tunneling communication connection to lower level tunneling communication connection for an arbitrary amount of times.

Gibson discloses the use of an upper and lower level tunnel *(column 11, lines 5-12 Gibson discloses the use of a pair of tunnels for data switching. Each tunnel is uni-directional. However, in one embodiment, the tunnels are established such that equal sized tunnels exist in either direction between two label switch routers. That is, if a label switching router (LSR) is used in the path to an endpoint, for every tunnel that terminates on that LSR, a corresponding tunnel is provided from that LSR in the opposite direction. As shown in figure 1, node 13 has a pair of tunnels on each side)*.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hughes' apparatus to include a tunneling communication

connection that recursively repeats merge upper level tunneling communication

connection to lower level tunneling communication connection for an arbitrary amount of

times, as taught by Gibson. The motivation is a more versatile communications network

that can transmit packets in either direction because for every tunnel that terminates on

that LSR, a corresponding tunnel is provided from that LSR in the opposite direction, as

explained by Gibson on column 11, lines 8-11.

### *Conclusion*

9.     The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following patent is cited to show the state of the art with respect to packet

cell merging:

US Patent (6,430,155) to Davie et al

US Patent (6,636,512) to Lorrain et al

US Patent (6,336,129) to Ise et al

US Patent (6,570,878) to Cai et al

US Patent (6,538,416) to Hahne et al

US Patent (6,529,958) to Oba et al

US Patent (6,430,155) to Davie et al

US Patent (6,148,000) to Feldman et al

IEEE article to Widjaja et al

The following patent is cited to show the state of the art with respect to multi-

protocol switching

US Patent (6,501,754) to Ohba et al

US Patent (6,408,001) to Chuah et al

IEEE article to Viswanathan et al

10.    Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369.

The examiner can normally be reached on 9am-6pm ET

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Ngo can be reached on 703-305-4798.  The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system.  Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AVN
February 13, 2004

RICKY NGO
PRIMARY EXAMINER